Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules	)	WT Docket No. 95-56
Concerning Low Power Radio and	)	
Automated Maritime Telecommunications	)	RM-7784
System Operations in the 216-217 MHz	)	
Band	)	

REPORT AND ORDER

Adopted: July 25, 1996 Released: August 2, 1996

By the Commission:

I. INTRODUCTION AND EXECUTIVE SUMMARY

1. By our actions today, we are permitting the shared use of the 216-217 MHz band, on a secondary, non-interference basis, for a new Low Power Radio Service (LPRS) to include auditory assistance devices, health care assistance devices, and law enforcement tracking systems. Use of these low power devices will be authorized by rule, rather than through individual licensing, in order to promote the rapid deployment of these new services to the public. We also are permitting Automated Maritime Telecommunications System (AMTS) coast stations to share the upper portion of this band on a secondary basis for low power point-to-point network control communications. Presently, no radio service is authorized by the Commission in the 216-217 MHz band on a primary basis due to the potential for harmful interference to television (TV) channel 13 reception. The sole high power service in this band is the United States Navy's Space Surveillance System (SPASUR) operating in the 216.88-217.08 MHz band.[1] Each of these new low power uses involve short range transmitters that are unlikely to cause harmful interference to TV reception on adjacent frequencies or government operations in the upper portion of the band.

2. This action benefits many sectors of the public by: (1) increasing educational opportunities and access to telecommunications devices for persons with disabilities, (2) facilitating health care services, (3) strengthening law enforcement, and (4) maximizing efficiency in the use of AMTS coast station frequencies. In addition, providing spectrum for auditory assistance devices and radio-based health care devices furthers the goals of the Americans with Disabilities Act of 1990 (ADA) and the Technology-Related Assistance for

[1] *See* 47 C.F.R. § 2.106, Footnote US229.

Individuals with Disabilities Act Amendments of 1994 (Tech Act Amendments) by promoting the development and use of affordable telecommunications devices by persons with disabilities in places such as educational settings, public gathering places, and health care facilities.[2] Such action is consistent with the goals of Section 255(b) of the Communications Act of 1934, as amended by Section 101 of the Telecommunications Act of 1996, which was intended to facilitate access to telecommunications equipment by persons with disabilities.[3] The other types of uses under this new radio service similarly contribute to the public good. Providing spectrum for law enforcement tracking systems promotes the development of state-of-the-art law enforcement tools which already have been successfully implemented in major cities nationwide on an experimental basis. Use of law enforcement tracking systems will facilitate reduction of crime and law enforcement costs by expediting the retrieval of stolen goods and apprehension of suspects. Further, low power point-to-point network control links will benefit tugs, barges, and commercial vessels by increasing the efficiency of channel usage in AMTS coast stations. Finally, this action promotes effective utilization of presently unused spectrum.

II. BACKGROUND

3. The 216-220 MHz band was originally allocated to the AMTS to provide automated, integrated, interconnected ship-to-shore communications for tugs, barges, and other commercial vessels on waterways. The band was divided into four frequency groups: the paired A and B Groups in the 217-218 MHz and 219-220 MHz bands, and the paired C and D Groups in the 216-217 and 218-219 MHz bands. The 216-217 MHz band, however, was found to be unusable by high power AMTS coast stations within 105 miles of TV channel 13 stations, which operate on the immediately adjacent 210-216 MHz band, due to the potential for harmful interference to TV reception.[4] Further, in 1992, the Commission reallocated the 218-219 MHz band from the AMTS to the Interactive Video and Data Service (IVDS).[5] This action effectively "orphaned" the 216-217 MHz band by taking away one side of the channel pair from Groups C

---

[2] ADA, Pub. L. 101-336, 104 Stat. 327 (1990); Tech Act Amendments, Pub. L. 103-218, 108 Stat. 50 (1994).

[3] 47 U.S.C. § 255 (Communications Act), *amended by* Pub. L. No. 104-104, 110 Stat. 56, 75 (1996) (1996 Telecommunications Act).

[4] *See* Amendment of Parts 2 and 80 of the Commission's Rules Applicable to Automated Maritime Telecommunications Systems (AMTS), GEN Docket No. 88-372, *First Report and Order*, 6 FCC Rcd 437 (1991). The Commission reached a similar conclusion in denying the American Radio Relay League's request to permit secondary use of the 216-217 MHz band for amateur operations because of the potential for harmful interference to TV reception. *See* Allocation of the 219-220 MHz Band for use by the Amateur Radio Service, ET Docket No. 93-40, *Report and Order*, 10 FCC Rcd 4446 (1995).

[5] Amendment of parts 0, 1, 2, and 95 of the Commission's Rules to Provide Interactive Video and Data Services, GEN Docket No. 91-2, *Report and Order*, 7 FCC Rcd 1630 (1992); *see also* Amendment of Parts 2 and 80 of the Commission's Rules Applicable to Automated Maritime Telecommunications Systems (AMTS), GEN Docket No. 88-372, *Memorandum Opinion and Order*, 7 FCC Rcd 3607 (1992).

and D.[6] Accordingly, the Group C and D channels are no longer assignable to AMTS coast stations.[7]

4. Before considering the use of new transmitting devices in the 216-217 MHz band, the Commission must consider the potential for harmful interference to government users in the band. The United States Navy's SPASUR radar system operates in the 216.88-217.08 MHz band and is presently the sole high power radio service in the 216-217 MHz band. The SPASUR radar system is located in the southern United States and consists of three high power transmitter locations and six receiver locations.[8] Section 2.106 of the Commission's rules, 47 C.F.R. § 2.106, provides that fixed and mobile transmissions may be authorized in the 216-220 MHz band so long as they do not cause harmful interference to SPASUR.

5. On November 30, 1992, the Commission released a *Notice of Proposed Rule Making and Notice of Inquiry* (*NOI*) in PR Docket No. 92-257 requesting public comment concerning alternative uses of the 216-217 MHz band that would not cause harmful interference to TV channel 13 (210-216 MHz).[9] Based on comments received in response to the *NOI*, the Commission released the *Notice of Proposed Rule Making* (*Notice*) in this proceeding on May 16, 1995, proposing to permit the shared use of the band by a new LPRS consisting of low power, one-way auditory assistance devices, health care monitoring devices, and law enforcement tracking systems.[10] Additionally, the *Notice* proposed to permit low power AMTS point-to-point communications in the upper portion of the 216-217 MHz band.

6. An auditory assistance system consists of a very low power, short range transmitter and special receivers that allow persons with hearing disabilities to enjoy educational or entertaining audio presentations. Such devices use a single frequency to transmit an audio signal one-way at very low power. Similarly, low power transmitters may be used in conjunction with medical monitoring equipment to transmit a patient's vital signs or other data over short distances in a health care facility. In a law enforcement tracking system extremely small radio transmitters can be attached to money and goods that are likely to be stolen. When a theft occurs, the device is activated and begins transmitting a radio signal. Radio direction finding equipment may then

---

[6] The AMTS was initially allocated 80 duplex channel pairs divided into four 20-channel groups, designated as Groups A, B, C, and D. Frequencies allotted for the ship transmit side of the channel pair in Groups C and D were reallocated to IVDS in GEN Docket No. 91-2. The remaining half of the pair in Groups C and D, 216-217 MHz, is currently not being used.

[7] 47 C.F.R. § 80.385.

[8] SPASUR transmitter sites are located in the vicinities of Archer, TX (99 dBW), Weptumka, AL (87 dBW), and Maricopa, AZ (89 dBW). SPASUR receiver sites are located on a great circle in the vicinities of Fort Stewart, GA, Hawkinsville, GA, Greenville, MS, Lewisville, AR, Truth or Consequences, NM, and Chula Vista, CA.

[9] Amendment of the Commission's Rules Concerning Maritime Communications, PR Docket No. 92-257, *Notice of Proposed Rule Making and Notice of Inquiry*, 7 FCC Rcd 7863 (1992).

[10] *Notice*, 10 FCC Rcd at 5428 (1995).

be used to rapidly locate the stolen item. Finally, low power AMTS point-to-point communications could aid in improving the efficiency of automated coast station systems by providing a channel which AMTS licensees may use to coordinate system operations. A majority of the thirty-three comments and six reply comments received support the proposals contained in the *Notice* and promote the delivery of the services described above.[11]

III. DISCUSSION

A. Scope of Service

7. *Proposal.* In the *Notice*, we proposed to authorize shared use of the 216-217 MHz band on a secondary, non-interference basis for a LPRS and low power AMTS point-to-point communications. The proposed LPRS included the operation of auditory assistance devices, law enforcement tracking systems, and radio-based health care aids. The AMTS point-to-point communications envisioned by the *Notice* would provide network control communications for AMTS coast stations.[12] Further, the *Notice* made clear that these low power transmissions must not cause harmful interference to TV receivers within the Grade B contour of any TV channel 13 station.[13]

8. *Comments.* Commenters overwhelmingly support the use of auditory assistance devices and health care aids in the 216-217 MHz band.[14] The American Speech-Language-Hearing Association (ASHA), representing more than 81,000 speech and hearing professionals, notes that the 72-76 MHz band, presently used for auditory assistance devices, is crowded with high power paging and land mobile systems that cause "significant interference" to low power devices. ASHA also notes that providing better quality spectrum for auditory assistance devices in educational settings furthers the goals of the ADA, the Individuals with Disabilities Education Act (IDEA),[15] and the Tech Act Amendments.[16] Pat Rice of the Minnesota State Academy for the Deaf adds that interference-free auditory assistance devices will result in a "significant dollar savings in educational costs nationwide."[17] Phonic Ear states that using the 216-217 MHz band would increase classroom access to auditory assistance devices, create an interference-free environment for the operation of such devices, and permit the miniaturization of headsets worn

---

[11] A list of parities filing comments and reply comments is contained in Appendix A.

[12] *Notice*, 10 FCC Rcd at 5429.

[13] The Grade B contour of a TV Channel 13 station is defined in 47 C.F.R. § 73.683.

[14] *See, e.g.*, American Speech-Language-Hearing Association (ASHA) Comments at 2; Fred Daniel d/b/a Orion Telecom (Orion) Comments at 2.

[15] IDEA, Pub. L. 102-119, 105 Stat. 587 (1991).

[16] ASHA Comments at 2; *see also, supra* note 2.

[17] Pat Rice Comments at 1.

by students.[18] The Association for Maximum Service Television, Inc., LIN Television Corp., Post-Newsweek Stations, Inc., and the Spartan Radiocasting Company (MSTV) and Williams Sound Corp. (WSC), a manufacturer of auditory assistance equipment, agree that the proposed LPRS transmissions do not pose a significant risk of harmful interference to TV channel 13 operations.[19]

9. Several commenters also advocate expanding the scope of the LPRS to include additional technologies. For example, Phonic Ear and WSC ask the Commission to authorize the use of auditory assistance devices to provide simultaneous language translation, noting a strong public demand for improving educational opportunities for Americans who do not speak English as a primary language.[20] Additionally, Phonic Ear advocates the use of auditory assistance devices to amplify sound in classrooms for children with attention problems.[21] Also, WSC asks the Commission to include Audio Description for the Blind (ADB) under the "auditory assistance" umbrella.[22]

10. Commenters also support the authorization of low power law enforcement tracking system transmitters in the 216-217 MHz band.[23] ProNet states that it operates nearly 30,000 electronic tracking system transmitters nationwide under an experimental license, providing service to over 90 law enforcement agencies and the Federal Bureau of Investigation (FBI) in over 100 cities.[24] ProNet claims that in 1994 alone, its systems were instrumental in capturing 204 suspects, recovering 1.8 million dollars in stolen cash and valuables, and preventing approximately 1,000 additional robberies by facilitating the rapid capture of suspects before they could commit other crimes.[25] Fifteen commenters representing localities, banks, and the FBI also attest to the success rate of electronic tracking systems. For example, a Santa Ana [CA] Resident Agent of the FBI notes that ProNet's system "has been a significant tool in lowering our area's bank robberies 55%, recovering 61% of dollars taken, and reducing violence and citizen harm in the Orange County area."[26] Further, MSTV and ProNet agree that, due to low transmitting power and intermittent operation, the proposed law enforcement tracking system transmissions

---

[18] Phonic Ear Comments at 2-3

[19] MSTV Comments at 3; WSC Reply Comments at 4

[20] Phonic Ear Comments at 7; WSC Reply Comments at 2

[21] Phonic Ear Comments at 7

[22] WSC Reply Comments at 3.

[23] *See, e.g.*, ProNet Comments at 1; MSTV Comments at 4

[24] ProNet Comments at 3

[25] ProNet Comments at 5.

[26] Letter from James M. Donckels, Senior Supervisory Resident Agent, Federal Bureau of Investigation, to William F. Caton, Acting Secretary, Federal Communications Commission, (August 10, 1995).

would not cause harmful interference to TV channel 13 operations.[27] In fact, ProNet claims that extensive testing has shown no perceptible harmful interference from law enforcement tracking systems in the 216-217 MHz band to TV channel 13 reception.[28]

11. The commenters are divided over the issue of authorizing low power AMTS point-to-point transmissions in the 216-217 MHz band. AMTS licensees Orion and Waterway Communications System, Inc. (WATERCOM), as well as Phonic Ear, support the use of "short-haul" AMTS links in the upper portion of the band, separate from the LPRS.[29] WATERCOM notes that authorizing low power operation would help AMTS systems "optimize frequency utilization and system management."[30] Additionally, Multimedia WMAZ, Inc. (Multimedia), a broadcast licensee, and Phonic Ear note that safeguards such as low power operation and directional antennas would protect adjacent channel services, such as other LPRS users and TV channel 13, from harmful interference.[31] MSTV and WVEC Television, Inc. (WVEC-TV), however, contend that AMTS transmissions in coastal markets will cause harmful interference to TV channel 13. Additionally, MSTV expresses concern regarding this interference potential on the basis of its experience that AMTS licensees "have not been willing to address interference problems seriously or effectively."[32] MSTV also states that future advanced television transmissions may be even more susceptible to interference from adjacent-band AMTS transmissions than existing NTSC signals.[33] Multimedia suggests that TV channel 13 licensees be notified in writing of and be given 45 days to comment on proposed AMTS point-to-point operations.[34]

12. Finally, several commenters urge us to consider expanding the permissible services for the 216-217 MHz band.[35] ProNet asks the Commission to authorize the use of "panic alarm"

---

[27] MSTV Comments at 3; ProNet Comments at 12.

[28] ProNet Comments at 12; *see also* ProNet Request to Modify Petition for Rule Making, RM-7784 (filed Oct. 26, 1993).

[29] Orion Comments at 1; Phonic Ear Comments at ii; WATERCOM Comments at 1.

[30] WATERCOM Comments at 2.

[31] Multimedia Comments at 3; Phonic Ear Comments at 10.

[32] MSTV Comments at 4.

[33] MSTV Reply Comments at 2. "NTSC" refers to the National Television Systems Committee standard for all television broadcast signals in the United States.

[34] Multimedia Comments at 4.

[35] In a related matter, the Commission proposed to seek an international allocation at the 1995 World Radiocommunication Conference for satellite feeder links in the lower portion of the 216-217 MHz band. *See* In the Matter of Preparation for International Telecommunication Union World Radiocommunication Conference, IC Docket No. 94-31, *Report*, 10 FCC Rcd 12783 (1995). This proposal, however, was not adopted internationally and

systems at universities as devices "to combat rising crimes against persons, such as rapes and assaults."[36] ProNet envisions enhanced campus security by providing students with a battery-powered transmitter that can be quickly activated to alert a campus police dispatch station of a threatening or perilous situation. Similarly, Dr. Michael C. Trahos (Trahos), Chairman of the Region-20 Public Safety Legislative/Regulatory Affairs Committee, advocates the authorization of a personal emergency locator transmitter service in the 216-217 MHz band.[37] Radio Telecom and Technology, Inc. (RTT), a manufacturer of IVDS equipment, asks the Commission to consider technical standards that will not prevent the introduction of future IVDS operations in the 216-217 MHz band.[38] Finally, Mahon & Patusky, Chartered (MPC), counsel to a developer of auditory assistance equipment, advocates planning for the next generation of advanced auditory assistance devices in the 400 MHz range.[39]

13. *Decision.* Based on overwhelming support from the commenters, we will authorize use of the 216-217 MHz band for a new service, the LPRS, for auditory assistance, radio-based health care, law enforcement tracking, and AMTS point-to-point network control transmissions.[40] In order to protect government operations in this band, LPRS transmitters must not cause harmful interference to the United States Navy's SPASUR radar system.[41] Further, operations in the LPRS must not cause harmful interference to TV receivers within the Grade B contour of any TV channel 13 station. All commenters agree that, operating under the 100 milliwatt (mW) effective radiated power (ERP) limitation discussed in paragraph 35 *infra*, auditory assistance devices, health care devices, law enforcement tracking systems, and AMTS point-to-point operations are very unlikely to cause harmful interference to TV channel 13 reception. We conclude that this action will benefit the public by increasing access to telecommunications

---

does not affect this proceeding. *See Final Acts of the World Radio Conference (WRC-95)*, Geneva (Nov. 17, 1995).

[36] ProNet Comments at 15.

[37] Trahos Comments at 4; Region-20 Public Safety Plan Review and Legislative/Regulatory Affairs Committee's Reply Comments at 3. The Region-20 Public Safety Planning Committee was created to address the future communications needs and concerns of the public safety community. The Committee is charged with submitting a public safety plan to the Commission and establishing a review committee to oversee its implementation. *See* Development and Implementation of a Public Safety National Plan and Amendment of Part 90 to Establish Service Rules and Technical Standards for Use of the 821-824/866-869 MHz Bands by the Public Safety Services, GEN Docket No. 87-112, *Report and Order*, 3 FCC Rcd 905 (1987).

[38] RTT Comments at 1.

[39] MPC Comments at 1.

[40] At a later date, we may revisit the eligibility requirements for LPRS stations to include additional types of transmitters or uses if changes in technology or communications patterns warrant such action.

[41] This action has been coordinated with the Department of the Navy through the National Telecommunications and Information Administration. The Department of the Navy does not object to LPRS operations in the 216-217 MHz band provided that such devices are required to cease operation immediately upon notification that they are causing harmful interference to SPASUR.

technologies for persons with disabilities, promoting the development of state-of-the-art radio-based law enforcement and medical diagnostic tools, and encouraging use of presently unused radio spectrum.

14. Consistent with Congressional and Commission goals,[42] providing spectrum for auditory assistance devices will benefit the approximately 23 million people in the United States with hearing disabilities[43] by increasing their educational opportunities and creating incentives to speed the development of radio-based assistance devices. For example, Congress noted in the 1994 Tech Act Amendments the "failure of Federal and State Governments, hardware manufacturers, software designers, information systems managers, and telecommunications service providers to account for the specific needs of individuals with disabilities" and stated that "[t]here are insufficient incentives for the commercial pursuit of the application of technology devices to meet the needs of individuals with disabilities, because of the perception that such individuals constitute a limited market."[44] Section 255(b) of the Communications Act mandates that manufacturers ensure that telecommunications equipment is accessible to and usable by individuals with disabilities.[45] Consistent with these Congressional initiatives, this action promotes the production of radio equipment that can improve the quality of life for persons with disabilities by making it easier for them to participate in classroom discussions, conduct business meetings, or enjoy sporting events. Auditory assistance devices presently operate in the 72-76 MHz band under Part 15 of our Rules and are sometimes unusable due to harmful interference from high power licensed users in the band. As discussed above, however, there are no high power users authorized by the Commission in the 216-217 MHz band due to the potential for harmful interference to TV channel 13. Additionally, this action will allow manufacturers to miniaturize antennas and design more aesthetically pleasing receivers. Finally, this is consistent with similar actions the Commission has initiated to make available additional spectrum for auditory assistance devices.[46]

15. Originally, we proposed to limit the use of auditory assistance devices to persons with disabilities, *i.e.*, persons with a physical or mental impairment that substantially limits one or more of the major life activities of such individuals.[47] Based on the comments, however, we

---

[42] These Congressional goals are set forth in the ADA, the 1994 Tech Act Amendments, and Section 255 of the Communications Act. *See supra* note 16.

[43] U.S. Department of Commerce, Economics and Statistics Admin., Bureau of the Census, Statistical Abstract of the United States 140 (114th ed. 1994).

[44] 1994 Tech Act Amendments, § 3(B)(7)-(8).

[45] Communications Act. *See supra* note 3.

[46] *See, e.g.*, Amendment of Part 15 to Provide Additional Frequencies for Auditory Assistance Devices for the Hearing Impaired, ET Docket No. 91-150, *Report and Order* 7 FCC Rcd 2256 (1992).

[47] For purposes of eligibility under the LPRS, "disability" will be defined as provided in section 3(2)(A) of the ADA (42 U.S.C. 12102(2)(A)).

believe eligibility under the LPRS should be expanded to include use of auditory assistance devices by persons that may benefit from such devices in educational settings, *e.g.*, persons with attention disorders or language barriers. Expanding the scope of the LPRS to include uses other than the amplification of sound for the hard of hearing is consistent with our goal of facilitating public access to telecommunications technologies. As the commenters point out, auditory assistance services could benefit the blind, students with attention disorders, and persons requiring simultaneous language translation. Because auditory assistance devices will operate at very low power in educational settings, homes, and public meeting places, we agree with the commenters that there is little threat of harmful interference to TV reception.

16. We believe that the public interest is also served by making the 216-217 MHz band available for radio-based health care aids.[48] Use of such devices would include, but not be limited to, the remote monitoring of patients' vital signs in hospitals and residential health care facilities. These advanced radio-based health care tools would allow health care providers to closely monitor several patients at once from a central location, rather than periodically checking each patient individually. By monitoring the vital signs of patients in real-time, health care providers will likely be better able to respond quickly in emergency situations. Because these health care aids will operate at very low power in hospitals and other health care facilities, we again agree with the commenters that it is unlikely that their operation will cause harmful interference to TV reception.

17. Additionally, as ProNet points out, the use of law enforcement tracking systems in this band will strengthen law enforcement and reduce costs at the federal, state, and local levels. Law enforcement tracking systems can deter criminals and reduce law enforcement costs by expediting the recovery of stolen goods and the capture of suspects. Authorizing law enforcement tracking systems in the 216-217 MHz band will promote the delivery of state-of-the-art radio-based law enforcement tools that have already been implemented in major cities nationwide on an experimental basis. This action is consistent with the Commission's previous decision to allocate radio spectrum for stolen vehicle recovery systems[49] and is representative of the Commission's efforts to make radio spectrum available for a variety of law enforcement and public safety needs.[50] Further, because law enforcement tracking system operations will most likely be infrequent, of short duration, and presumably far from TV receivers, the potential for harmful interference to TV Channel 13 and other LPRS users will be minimized.

---

[48] This is consistent with the Commission's proposal to permit the operation of low power unlicensed medical telemetry devices on television channels 7-13 and on UHF TV channels. *See* Amendment of Part 15 of the Commission's Rules to Permit Operation of Biomedical Telemetry Devices on VHF TV Channels 7-13 and on UHF TV Channels, OET Docket No. 95-177, *Notice of Proposed Rule Making*, 11 FCC Rcd 1063 (1996).

[49] Amendment of Parts 2 and 90 of the Commission's Rules to Provide for Stolen Vehicle Recovery Systems, GEN Docket No. 88-566, *Report and Order*, 4 FCC Rcd 7558 (1989).

[50] *See* Development of Operational, Technical, and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Notice of Proposed Rule Making*, FCC 96-155 (released April 10, 1996).

18. We also will allow the upper portion of the band (216.750-217.000 MHz) to be used for AMTS point-to-point network control transmissions. The 216-217 MHz band, originally allocated on a primary basis for AMTS coast stations operating at high power as part of a larger spectrum allocation, was later determined unassignable for this use because of the potential for harmful interference to TV channel 13. AMTS fixed transmitters operating at the same power level as the other low power services, however, should be compatible with TV channel 13 operations as well as other LPRS operations. We believe that allowing such AMTS use in this portion of the 216-217 MHz band will promote greater efficiency in the use of AMTS Group A and B channels.

19. We conclude that low power AMTS operations, used in conjunction with the high power operations already permitted under Part 80 of our rules,[51] will not cause harmful interference to TV reception. First, there is no technical data in the record to support claims of AMTS interference at such low power levels. Second, MSTV's contention that AMTS licensees are unwilling to address interference concerns is unsubstantiated. In fact, opposing commenters failed to cite any specific instances where an existing AMTS licensee has not been diligent in quickly identifying sources of interference to TV channel 13 and remedying those situations caused by AMTS transmitters. Third, in response to MSTV's concern that advanced TV transmissions will be susceptible to interference from low power AMTS transmissions, the commenters have failed to provide any technical data showing how digital TV signals would be more susceptible to adjacent band interference from low power transmissions than today's analog TV signals.[52]

20. We decline at this time to authorize the operation of personal alerting systems, such as ProNet's "panic alarm" system, under the LPRS. In PR Docket No. 89-599, the Commission stated that a personal emergency locator service was not a viable service eligible for allocation because: (1) a personal alerting system cannot be effective without a corresponding monitoring and response system supported by a significant number of public safety groups; and (2) the potential for liability would effectively prevent public safety groups from participating in a personal alerting system.[53] In this proceeding, no commenter, public safety organization, or educational institution has indicated that they are willing to provide such a monitoring and response system to supplement personal alerting devices. Without support from entities who intend to respond to panic alarms, we are not persuaded that it serves the public interest to allot

---

[51] *See* 47 C.F.R. § 80.475.

[52] In an ongoing proceeding, the Commission is considering all issues related to adopting an advanced digital television system (DTV). *See, Advanced TV Systems and Their Impact Upon the Existing TV Broadcast Service, Fourth Further Notice of Proposed Rule Making and Third Notice of Inquiry*, 10 FCC Rcd 10540 (1995). *Fifth Further Notice of Proposed Rule Making*, FCC 96-207 (released May 20, 1996). DTV stations assigned channel 13 (210-216 MHz) will be entitled to the same protection from harmful interference as NTSC stations.

[53] Amendment of Parts 0, 1, 2, and 95 of the Commission's Rules Regarding the Establishment of a Personal Emergency Locator Transmitter Service, PR Docket No. 89-599, *Memorandum Opinion and Order*, 6 FCC Rcd 4813 (1991).

scarce spectrum for such use.[54] Additionally, none of the commenters propose technical specifications (*e.g.*, number of channels necessary, transmitter duty cycle) that would serve to minimize the potential for harmful interference to TV reception and other LPRS operations. Specific technical limitations would be necessary in this case because personal alerting systems, such as ProNet's "panic alarm" system, could involve a large number of transmitters operating simultaneously in a small geographic area. Finally, the request of MPC to allocate spectrum above 400 MHz for the operation of advanced auditory assistance devices and that of RTT not to preclude future IVDS operations in the 216-217 MHz band are beyond the scope of this proceeding and will not be considered.

B. Band Licensing

21. *Proposal.* In the *Notice*, we proposed to authorize stations in the LPRS regionally, based on Metropolitan Statistical Areas (MSAs) and Rural Service Areas (RSAs).[55] We also proposed that applicants file a FCC Form 600 application to obtain a station license in the LPRS. We did not propose to limit the total number of licensees permitted in a single MSA or RSA, nor did we propose to limit the total number of authorizations a single entity could obtain. Further, for AMTS stations, we proposed to authorize point-to-point operations on a case-by-case basis, with applicants submitting a FCC Form 503 application.[56]

22. *Comments.* In lieu of the proposed regional licensing scheme, a number of the commenters support site-specific licensing in the LPRS in order to facilitate frequency coordination and reuse.[57] Self Help for Hard of Hearing People, Inc. (SHHH), a national consumer organization, and Phonic Ear, on the other hand, argue that operation of very low power portable transmitters (*i.e.*, 10 mW or less) should not require an individual license, but that higher power systems (*i.e.*, greater than 10 mW) which have greater range should be licensed individually.[58] ASHA agrees, noting that licensing requirements for individuals, schools, or businesses that employ people with hearing loss would create undue administrative and financial burdens on these entities, thus delaying and possibly deterring the use of these wireless services in educational and business environments.[59] In this connection, Phonic Ear notes that the Commission previously has authorized personal transmitters without individual station licenses

---

[54] At a later date, we may revisit this issue if conditions warrant such action. Supporters of personal emergency locator transmitters or panic alarms may also wish to pursue this issue in the context of the Commission's public safety proceeding. *See supra* note 50.

[55] 47 C.F.R. § 22.909; FCC Public Notice, Report No. 92-40 (Jan. 24, 1992); *Notice*, 10 FCC Rcd at 5429.

[56] *Notice*, 10 FCC Rcd at 5429.

[57] SHHH Comments at 4-5; ASHA Comments at 4; Phonic Ear Comments at 4; WSC Reply Comments at 1-2.

[58] SHHH Comments at 4-5; Phonic Ear Comments at [illegible].

[59] ASHA Comments at 4.

under Part 95 of our rules in the Citizens Band Radio Service.[60] SHHH notes that licensing higher power transmitters (*i.e.*, greater than 10 mW) at specific locations, instead of by region, will facilitate cooperation among licensees in selection of channels to avoid harmful interference.[61] Phonic Ear agrees and argues that a benefit of site-specific licensing is the creation of a regulatory database that can be used to coordinate frequency usage at a local level.[62] However, Phonic Ear also states that individuals should be able to travel freely with their systems.[63] In contrast, ProNet notes that a MSA/RSA licensing scheme would be appropriate for law enforcement tracking systems.[64]

23. *Decision.* We find that the administrative and economic burdens associated with individually licensing stations in the LPRS greatly outweigh any derived benefits to the public and the Commission. The commenters' support for individual licensing is based on the premise that a licensing database would promote frequency reuse and reduce interference among LPRS users. Because the transmitters in question operate at very low power, however, such a database would have to specify the exact location (*i.e.*, latitude and longitude) of each LPRS transmitter. Further, this database would have to be updated each time a transmitter is moved across the country, across a state, or even across town. In order for the Commission to administer and maintain such a licensing database, LPRS licensees would be required to file with the Commission, and remit an application fee covering administrative costs, each time a LPRS transmitter is moved. Similarly, the regional licensing scheme proposed in the *Notice* does not meet the needs of potential LPRS users. Although regional or even nationwide licensing would be much less burdensome than individual licensing, any method that does not keep a current record of the exact locations of such short-range devices would not promote frequency reuse or help to reduce interference among LPRS users.

24. Based on the discussion above, and pursuant to Section 307(e) of the Communications Act, we find that the public interest is best served by licensing LPRS stations by rule under the Citizens Band Radio Service (CB) in Part 95 of our rules.[65] Stations in the LPRS qualify as CB because of the following factors: (1) they serve a broad potential universe of users, and (2) the creation of a vast user database would not be useful for spectrum management or enforcement purposes. To control potential harmful interference, spectrum

---

60 Phonic Ear Comments at 6.

61 SHHH Comments at 3.

62 Phonic Ear Comments at 5-6.

63 Phonic Ear Comments at 5-6.

64 ProNet Comments at 10.

65 47 U.S.C. § 307(e) (1995).

management will be accomplished through transmitter technical standards.[66] Therefore, LPRS users may operate nationwide without having to obtain an individual station license or pay licensing fees. Further, to promote spectrum reuse and reduce the likelihood of harmful interference, we encourage manufacturers to design LPRS equipment that includes power and frequency controls.

C. Channelization, Power Limits, and Equipment Authorization

25. *Proposal.* In the *Notice*, we proposed to subdivide the 216-217 MHz band into 40 channels with 25 kHz channel spacing. We designated the lower 30 channels closest to TV channel 13 (216.000-216.750 MHz) for the LPRS and the upper 10 channels (216.750-217.000 MHz) for AMTS point-to-point network control communications. Further, we proposed that two of the channels allotted to the LPRS (216.4625 MHz and 216.4875 MHz) would be used exclusively by law enforcement tracking systems. The lower 20 channels were proposed to be limited to 100 mW output power, while the upper 20 channels were proposed to be limited to one watt output power. We requested comments concerning the proposed channel plan and the possible effects of LPRS and AMTS operations on TV Channel 13 reception.[67]

26. *Comments.* A majority of the commenters support the proposed channel plan for the 216-217 MHz band of 40 twenty-five kilohertz wide channels. Phonic Ear and ProNet agree that designating specific channels is essential in order for manufacturers to predict sources of adjacent channel interference.[68] In addition to supporting the proposed channel plan, some commenters advocate assigning specific frequencies for use by each type of application authorized within the LPRS. For example, Phonic Ear and SHHH ask the Commission to designate specific frequencies for exclusive use by auditory assistance devices.[69] Similarly, SEA, Inc. (SEA), a manufacturer of narrowband land mobile radio equipment, urges the Commission to set aside specific frequencies for law enforcement tracking, health care aids, and AMTS operations so that users in each service can control sources of interference on at least a portion of the channels.[70]

27. The commenters also express a need for wider channels for certain LPRS applications. For example, Phonic Ear, SHHH, and WSC support allowing fifty kilohertz-wide

---

[66] The Commission has reached similar conclusions concerning stations in the maritime, aviation, and personal radio services. *See* Amendment of Parts 80 and 87 of the Commission's Rules to Permit Operation of Certain Domestic Ship and Aircraft Radio Stations Without Individual Licenses, WT Docket No. 96-82, *Notice of Proposed Rule Making*, FCC 96-145 (released April 12, 1996); Amendment of Part 95 of the Commission's Rules to Establish a Very Short Distance Two-way Radio Service, WT Docket No. 95-102, Report and Order, FCC 96-215 (released May 14, 1996).

[67] *Notice*, 10 FCC Rcd at 5429.

[68] Phonic Ear Comments at 9; ProNet Comments at 11-12.

[69] Phonic Ear Comments at 4; SHHH Comments at 4.

[70] SEA Comments at 8.

channels, overlaid upon the proposed 25 kHz channels.[71] Commenters note that certain LPRS applications will require increased bandwidth to provide high fidelity audio or to expedite the tracking of stolen goods.[72] Phonic Ear also notes that channels should be combined in a uniform fashion, using predetermined center frequencies, in order to incorporate interference safeguards into equipment designs.[73] For similar reasons, ProNet argues that the designated law enforcement tracking system frequencies should be located within the band such that the same, or lower, power equipment operates on adjacent channels.[74]

28. Orion and WATERCOM ask the Commission to permit non-channelized, wideband AMTS emissions in the upper portion of the 216-217 MHz band, in lieu of the proposed channel scheme.[75] WATERCOM also requests that AMTS stations be permitted to use either analog or digital emissions in this band.[76] Orion and WATERCOM contend that permitting wide-band AMTS data transmissions will increase information throughput, decrease equipment cost, and promote competition among marine service providers.

29. SEA asks the Commission to subdivide the 216-217 MHz band exclusively into 200 narrowband (5 kHz) channels in order to increase the number of available channels, broaden the user base, and increase access to low power technologies nationwide.[77] ProNet opposes an exclusive narrowband channel plan in this band stating that "conversion of all spectrum to extremely narrowband operation is neither desirable nor beneficial." Additionally, ProNet notes that a minimum bandwidth of 25 kilohertz is necessary to design a law enforcement tracking transmitter that is economical, concealable, and reliable.[78]

30. The commenters generally support the proposed power limits and suggest further restrictions to increase spectrum efficiency within the band. For example, Phonic Ear and SHHH advocate reducing the power limit on a portion of the channels to 10 mW output power in order to facilitate frequency reuse in educational settings with numerous small classrooms.[79] Further, SHHH suggests creating three channel groupings (*e.g.*, less than 10 mW, less than 100 mW, and

---

[71] Phonic Ear Reply Comments at 3; SHHH Comments at 6; WSC Comments at 2.

[72] *Id.*

[73] Phonic Ear Reply Comments at 4-5.

[74] ProNet Comments at 14-15.

[75] Orion Comments at 3-4; WATERCOM Comments at 2.

[76] WATERCOM Comments at 2.

[77] SEA Comments at 4.

[78] ProNet Reply Comments at 7.

[79] Phonic Ear Comments at 6; SHHH Comments at 8-9.

less than 1 watt) to accommodate varying types of uses.[80] WSC supports LPRS sharing of AMTS frequencies in the upper portion of the 216-217 MHz band provided transmissions are limited to less than 100 mW output power. WSC adds that such sharing would not cause harmful interference to AMTS reception.[81] MSTV strongly supports limiting LPRS operations to 100 mW ERP, stating that such low power operations would not cause harmful interference to TV channel 13.[82]

31. Commenters also suggest changes to the proposed rules concerning frequency tolerance, equipment authorization, and AMTS transmitter sites. Phonic Ear asks that the Commission require type acceptance of LPRS transmitters of more than 10 mW output power and simply require certification of lower power transmitters. Phonic Ear notes that transmitters of less than 10 mW output power pose minimal risk of harmful interference and that the certification process would reduce administrative burdens on both manufacturers and the government.[83] The American Academy of Audiology (Academy), representing audiologists nationwide, and Phonic Ear argue that crystal-controlled oscillators should not be required in auditory assistance devices.[84] The commenters point out that manufacturers may wish to employ other established technologies to ensure frequency stability. Multimedia asks that AMTS transmitters in the upper portion of the 216-217 MHz band not be located near television master antenna systems. Multimedia notes that a high gain television master antenna receive system would amplify nearby AMTS transmissions and cause harmful interference to all televisions connected to the system.[85]

32. *Decision.* In order to speed availability of LPRS devices and promote efficient use of the 216-217 MHz band, we will channelize the band. Because we are authorizing LPRS transmitters by rule, we believe, and the commenters agree, that a channel plan is necessary to permit unsophisticated users of the band to combat interference by simply switching to a different frequency. Further, by specifying minimum technical requirements such as channel bandwidth and operating frequencies, we are providing manufacturers with a standard for compatibility among low power devices -- permitting them to quickly design and produce equipment. In this manner, we can provide immediate benefits to persons with disabilities and persons with illnesses, as well as law enforcement agencies nationwide.

33. In order to promote flexible use of the 216-217 MHz band, we are adopting a channeling plan which accommodates a variety of channel bandwidths and technologies. We

---

[80] SHHH Comments at 8-9.

[81] WSC Reply Comments at 3.

[82] MSTV Reply Comments at 3.

[83] Phonic Ear Comments at 11.

[84] Academy Comments at 2; Phonic Ear Comments at 11.

[85] Multimedia Comments at 3.

believe that this flexible channel plan will allow consumers to choose equipment that best suits their needs. We will divide the 216-217 MHz band into 40 twenty-five kilohertz (standard band) channels. Additionally, to provide flexibility in LPRS operations as suggested by a number of the commenters, we will specify 20 fifty kilohertz (extra band) channels. These extra band channels will overlap the standard band channels and give users the flexibility to obtain high fidelity audio or, in the case of law enforcement tracking systems, expedite the tracking of stolen goods. Further, as suggested by SEA, we will facilitate the development and use of spectrally efficient narrowband technologies by dividing the band into 200 five kilohertz channels. By providing additional channel choices, these narrowband channels could benefit users in congested environments such as schools and hospitals with numerous small rooms. Of the 40 channels (20 extra band channels, 200 narrowband channels), 38 (19 extra band channels, 190 narrowband channels) will be available for auditory assistance, health care, and law enforcement use. The remaining two standard band channels[86] will be authorized exclusively for law enforcement tracking. Finally, we will allow AMTS licensees to use the 216.750-217.000 MHz band (standard band channels 31-40) for point-to-point network control communications. AMTS licensees may use this entire band segment as a single 250 kHz channel (wideband) so long as emissions outside the band are reduced as specified in 47 C.F.R. § 95.635. Wideband operations will give AMTS licensees additional flexibility and should not increase the potential for interference to TV reception under these circumstances because such operations will be conducted by Commission licensees between fixed points at low power using directional antennas.

34. We decline to designate exclusive frequencies for auditory assistance devices, health care aids, or AMTS for two reasons. First, there are only 40 standard band channels available and the potential for a large number of users. Second, we believe these services can coexist in the same band with minimal potential for harmful interference because of their low power and the channelization flexibility we are providing, as well as the fact that each LPRS use takes place either in distinct areas or at specific fixed sites. For example, auditory assistance devices will likely be used in schools and other gathering places, health care aids will likely be used in hospitals and health care facilities, and AMTS transmitters will only operate at specific fixed locations near coast stations. Thus, if harmful interference occurs, the source will most likely be a nearby transmitter of the same type, rather than another type of LPRS transmitter. In this case, exclusive channel assignments would only reduce channel options and flexibility for each category of user. We will, however, designate two LPRS standard band frequencies, 216.4625 MHz and 216.4875 MHz (including extra band operations on 216.475 MHz and narrowband operations on 216.4525-216.4975 MHz) to be used exclusively for law enforcement tracking. We believe exclusivity is needed here because of the itinerant nature of law enforcement tracking systems and the need for law enforcement entities to track extremely valuable goods or undercover agents without the threat of interference from other low power services.

35. As discussed above, low power is one of the key elements of band licensing where there are shared operations and the potential for a large number of users. Therefore, we will

[86] *See infra* para. 34.

restrict transmitter power for all LPRS transmissions in the band to 100 mW ERP. All commenters, including MSTV, agree that transmissions of 100 mW ERP or less in the band would pose little threat of harmful interference to TV channel 13 reception. Further, none of the commenters express a specific need for using the 1 watt power level proposed in the *Notice*. In fact, Phonic Ear notes that lower power levels are desirable in order to combat potential interference to TV channel 13 and maximize frequency reuse among LPRS users. Thus, we are establishing a level of 100 mW ERP as the maximum power for LPRS transmissions and giving manufacturers the freedom and flexibility to design products with adjustable power controls -- allowing users to decrease transmitting range in situations where greater frequency reuse is desirable, such as in schools and hospitals. If harmful interference to TV channel 13[87] or the SPASUR radar system does occur, however, LPRS transmissions must immediately cease until the problem is corrected.

36. Our approach to establishing the LPRS has been to minimize regulations and regulatory burdens on users and instead use technical standards and the Commission's equipment authorization program to minimize the potential for interference. Therefore, we will specify equipment authorization procedures, frequency tolerance, and emission limitations. In regard to equipment authorization procedures, we will require LPRS transmitters to be type accepted by the Commission as proposed. Contrary to our proposal in the *Notice*, however, we will not require crystal controlled oscillators to be used in LPRS transmitters to ensure frequency stability. As Academy and Phonic Ear point, out other technologies exist that can provide equivalent, if not better, control of a unit's operating frequency. For the standard and extra band channels, we are adopting the frequency tolerance and emission limitations as proposed. Although the commenters in this proceeding did not address the specific technical criteria for narrowband operations in the LPRS, we note that narrowband transmitters are already authorized in the nearby 220-222 MHz band for land mobile use under Part 90 of our rules.[88] As a result, we will apply the same frequency tolerance and emission limitations to narrowband LPRS transmitters as are currently used to govern narrowband operations in the 220-222 MHz private land mobile radio band.[89] We believe that these rules will facilitate the shared use of the 216-217 MHz band by LPRS users.

IV. CONCLUSION

37. For the reasons set forth above, we are amending Parts 80 and 95 of the Commission's rules to authorize the shared use of the 216-217 MHz band on a secondary, non-interference basis to government operations for a new LPRS to include auditory assistance devices, health care devices, law enforcement tracking systems, and AMTS point-to-point network control communications. This action is in the public interest because it increases educational

[87] In this context, the term "TV channel 13" refers to transmissions from TV broadcast stations, low power TV stations, and TV translator stations authorized to use the 210-216 MHz band.

[88] *See* 47 C.F.R. Part 90 Subpart T.

[89] *See* 47 C.F.R. §§ 90.210(f) and 90.213.

opportunities and access to telecommunications devices for persons with disabilities and persons with illnesses, strengthens the ability of the law enforcement community to combat crime, and maximizes efficiency in the use of AMTS coast station frequencies.

V. PROCEDURAL MATTERS

38. *Regulatory Flexibility Analysis.* The analysis pursuant to the Regulatory Flexibility Act of 1980, 5 U.S.C. Section 608, is contained in Appendix B.

39. *Ordering Clauses.* Accordingly, IT IS ORDERED that Parts 80 and 95 of the Commission's Rules ARE AMENDED as set forth in Appendix C. Authority for this action is contained in Sections 4(i), 302, 303(r), and 307(e) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 302, 303(r), and 307(e).

40. IT IS FURTHER ORDERED that these amendments are effective [30 days after publication in the Federal Register].

41. IT IS FURTHER ORDERED that this proceeding is terminated.

42. For further information, contact Roger Noel or Ira Keltz of the Wireless Telecommunications Bureau, Private Wireless Division, at (202) 418-0680 or via E-Mail to "mayday@fcc.gov".

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

APPENDIX A

Commenters

1) American Academy of Audiology

2) American Speech-Language-Hearing Association (ASHA)

3) Clarke- School for the Deaf/Center for Oral Education

4) Dallas Police Department, Dallas, Texas

5) First Interstate Bank, Phoenix, Arizona

6) Guaranty Federal Bank, Dallas, Texas

7) The Honorable Phil Gramm, United States Senator

8) Highland Park Department of Public Safety, Highland Park, Texas

9) The Honorable Kay Bailey Hutchison, United States Senator

10) Irvine Police Department

11) Key Bank of Washington, Tacoma, Washington

12) Little Rock Police Department, Little Rock, Arkansas

13) Mahon & Patusky, Chartered (MPC)

14) Association for Maximum Service Television, Inc. (MSTV)

15) Minnesota State Academy for the Deaf

16) Multimedia WMAZ, Inc. (Multimedia)

17) Fred Daniel d/b/a Orion Telecom (Orion)

18) Phoenix Police Department, Phoenix, Arizona

19) Phonic Ear, Inc. (Phonic)

20) Portland Police Bureau, Portland, Oregon

21) ProNet, Inc. (ProNet)

22) Radio Telecom and Technology, Inc. (RTT)

23) Reno Police Department, Reno, Nevada

24) San Antonio Police Department, San Antonio, Texas

25) Santa Ana Resident Agency of the Federal Bureau of Investigation, Santa Ana, California

26) SEA, Inc. (SEA)

27) Self Help for Hard of Hearing People, Inc. (SHHH)

28) Tacoma Police Department, Tacoma, Washington

29) Michael C. Trahos, D.O. (Trahos)

30) Washington County, Oregon Sheriff's Department

31) Waterway Communications System, Inc. (Watercom)

32) Wells Fargo Bank, San Francisco, California

33) Williams Sound Corporation (WSC)

Reply Comments

1) CTA Commercial Systems, Inc. (CTA)

2) Mahon & Patusky, Chartered (MPC)

3) Association for Maximum Service Television, Inc. (MSTV)

4) Phonic Ear, Inc. (Phonic)

5) Michael C. Trahos, D.O. (Trahos)

6) WVEC Television, Inc. (WVEC)

APPENDIX B

FINAL REGULATORY FLEXIBILITY ANALYSIS

As required by Section 603 of the Regulatory Flexibility Act, 5 U.S.C. § 603 (RFA), an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice of Proposed Rule Making* in this proceeding (*Notice*). The Commission sought written public comments on the proposals in the *Notice*, including on the IRFA. The Commission's Final Regulatory Flexibility Analysis (FRFA) in this *Report and Order* conforms to the RFA, as amended by the Contract With America Advancement Act of 1996 (CWAAA), Pub. L. No. 104-121, 110 Stat. 847 (1996).[90]

I. Need For and Purpose of this Action:

Our objective is to permit the shared use of the 216-217 MHz band on a secondary basis by a new Low Power Radio Service (LPRS) -- consisting of auditory assistance devices, health care aids, law enforcement tracking systems and AMTS point-to-point network control communications. This action will: (1) promote the utilization of presently unused spectrum; (2) speed development and delivery of advanced telecommunications devices for persons with disabilities and illnesses; (3) promote the development of tools for use by federal, state, and local law enforcement agencies in retrieving stolen goods and deterring crime; and (4) increase system efficiency in the AMTS.

In creating a new LPRS, we find that the potential benefits to persons with disabilities and illnesses, the law enforcement community, and vessel operators exceed any negative effects that may result from the promulgation of rules for this purpose. Thus, we conclude that the public interest is served by creating a new LPRS in the 216-217 MHz band.

II. Summary of Issues Raised by the Public Comments in Response to the Initial Regulatory Flexibility Analysis (IRFA):

No comments were filed in direct response to the IRFA. In general comments on the *Notice*, however, some small business commenters raised issues that might affect small entities. In particular, some small business commenters argued that requiring very low power LPRS devices to be licensed by the Commission would be overly burdensome on small entities and individuals and could deter them from using LPRS systems. Small business commenters also noted that the Commission should channelize the 216-217 MHz band in order to promote the conversion of existing equipment (operating in 72-76 MHz band) to the higher band and the rapid deployment of auditory assistance systems. Further, small business commenters asked the Commission to eliminate the requirement for LPRS transmitters to

[90] Subtitle II of the CWAAA is "The Small Business Regulatory Enforcement Fairness Act of 1996" (SBREFA), codified at 5 U.S.C. § 601 *et seq.*

employ crystal oscillators to control frequency stability. These small business commenters noted that there may be other technologies that may be economically and technically viable, while providing adequate frequency control. The Commission carefully considered each of these comments in reaching the decisions set forth in this *Notice*.

III. Changes Made to the Proposed Rules:

In the *Notice*, the Commission proposed to generally license LPRS stations regionally based on Metropolitan Statistical Areas (MSAs) and Rural Service Areas (RSAs), with the AMTS stations licensed under the Maritime Service Rules in Part 80 and two of the law enforcement tracking channels under the Police Radio Service in Part 90. The Commission also proposed to require the public to apply for these licenses using FCC Form 600 or FCC Form 503 (AMTS only). However, the Commission here determines that the public interest is served by licensing all LPRS stations by rule, rather than individually. The Commission proposed to divide the 216-217 MHz band into 40, twenty-five kilohertz channels. In order to promote technical flexibility and allow consumers to choose among a broader range of low power equipment, the Commission decided to instead divide the band into 40, twenty-five kilohertz channels (standard band), 20, fifty kilohertz channels (extra band), 200, five kilohertz channels (narrowband), and permit AMTS operations in the highest two hundred fifty kilohertz block of the band. The Commission proposed to permit 100 milliwatt and 1 watt transmissions in the lower and upper portions of the 216-217 MHz band, respectively. Based on the comments, however, the Commission decides to instead limit LPRS transmitter power to 100 milliwatts. The Commission also deviates from the proposed rules to expand the scope of the LPRS to include auditory assistance services for all persons in educational settings and persons that require language translation in any setting. The Commission decides not to specify the means by which manufacturers may provide for frequency stability in LPRS transmitters. Finally, the Commission determines that it is unnecessary for AMTS licensees to notify channel 13 TV stations of proposed LPRS point-to-point operations other than those stations that were not originally notified at licensing.

IV. Description and Estimate of the Small Entities Subject to the Rules:

The rules adopted in this *Report and Order* will apply to small businesses that choose to use, manufacturer, design, import, or sell auditory assistance devices, radio-based health care aids, law enforcement tracking systems, or AMTS point-to-point transmitters. There is no requirement, however, for any entity to use or produce these types of products.

A. Estimates for LPRS Manufacturers/Importers

The Commission has not developed a definition of small entities specifically applicable to LPRS manufacturers and importers. Therefore, the applicable definition of small entity is the definition under the Small Business Administration rules applicable to radio and television broadcasting and communications equipment manufacturers. This definition provides that a small entity is any entity employing less than 750 persons. *See* 13 C.F.R. § 121.201, Standard Industrial Classification (SIC) Code 3663. Additionally, the Small Business

Administration rules state that wholesale electronic parts and equipment firms must have 100 or fewer employees in order to qualify as a small business entity. *See* 13 C.F.R. § 121.201. Since the Regulatory Flexibility Act amendments were not in effect until the record in this proceeding was closed, the Commission was unable to request information regarding the number of small entities that may choose to manufacture LPRS equipment and is unable at this time to make a meaningful estimate of the number of potential manufacturers which are small businesses.

The 1992 Census of Manufacturers, conducted by the Bureau of Census, which is the most comprehensive and recent information available. shows that approximately 925 out of the 948 entities manufacturing radio and television transmitting equipment in 1992 employed less than 750 persons. We are unable to discern from the Census data precisely how many of these manufacturers produce devices similar to those that will be used under the new LPRS. Further, any entity may choose to manufacture LPRS equipment. Further, 12,161 of the 12,654 wholesale electronic parts and equipment firms have fewer than 100 employees, and would be classified as small entities. Therefore, for purposes of our evaluations and conclusions in this Final Regulatory Flexibility Analysis, we estimate that there are at least 13,086 potential manufacturers or importers of LPRS equipment which are small businesses, as that term is defined by the Small Business Administration.

B. Estimates for AMTS Licensees

The Commission has not developed a definition of small entities specifically applicable to AMTS licensees. Therefore, the applicable definition of small entity is the definition under the Small Business Administration rules applicable to radiotelephone service providers. This definition provides that a small entity is any entity employing less than 1,500 persons. *See* 13 C.F.R. § 121.201, Standard Industrial Classification (SIC) Code 4812. Since the Regulatory Flexibility Act amendments were not in effect until the record in this proceeding was closed, the Commission was unable to request information regarding the number of small AMTS businesses and is unable at this time to determine the precise number of AMTS firms which are small businesses.

The size data provided by the Small Business Administration does not enable us to make a meaningful estimate of the number of AMTS firms which are small businesses. Therefore, we used the 1992 Census of Transportation, Communications, and Utilities, conducted by the Bureau of the Census, which is the most recent information available. This document shows that only 12 radiotelephone firms out of a total of 1,178 such firms which operated during 1992 had 1,000 or more employees. There are three AMTS licensees which are authorized on an exclusive basis along the Mississippi River, portions of the West Coast, and nearly the entire East Coast. Because most of the nation's coastline has or will be covered by the present licensees, it is unlikely that a large number of additional licenses will be authorized in the future. Therefore, for purposes of our evaluations and conclusions in this Final Regulatory Flexibility Analysis, we estimate that there are three AMTS licensees which are small businesses, as that term is defined by the Small Business Administration.

V. Summary of Projected Reporting, Recordkeeping and Other Compliance Requirements:

In order to facilitate operation of LPRS devices without individual licenses, we are imposing four separate regulatory burdens that may affect small businesses.

(1) Prior to marketing an LPRS device in the U.S., a manufacturer must have the unit type accepted by the Commission under the technical criteria set forth in the final rules. The criteria include channel specifications and emission limitations that will facilitate the shared use of the 216-217 MHz band by a diverse group of users. All classes of small businesses could potentially be affected by this requirement. In order to have a unit type accepted, a small entity would have to test the radio equipment and provide clerical support to file the requisite FCC application forms. Both of these functions could be handled by a third party.

(2) Each LPRS transmitter sold must have included with it the following statement: "This transmitter is authorized by rule under the Low Power Radio Service (47 C.F.R. Part 95) and must not cause harmful interference to TV reception or United States Navy SPASUR installations. You do not need an FCC license to operate this transmitter. This transmitter may only be used to provide: auditory assistance to persons with disabilities, persons who require language translation, or persons in educational settings; health care services to the ill; law enforcement tracking services under agreement with a law enforcement agency; or automated maritime telecommunications system (AMTS) network control communications Two-way voice communications and all other types of uses are expressly prohibited." All classes of small businesses could potentially be affected. Because the Commission is providing specific language to be included with each device, a small business would need clerical support to add this language to the instruction manual for the device

(3) Unless the transmitter is so small as to make this requirement impractical, each LPRS transmitter sold must bear the following statement in a conspicuous location on the device: "This device may not interfere with TV reception or federal government radar, and must accept any interference received, including interference that may cause undesired operation." The Commission does not specifiy whether this statement must be inscribed into the unit or attached via a label or sticker.

(4) AMTS licensees must notify, in writing, each television station that may be affected by these new low power operations. There is no need, however, for AMTS licensees to renotify television stations that were previously alerted concerning AMTS operations in their areas.

VI. Steps Taken to Minimize the Significant Economic Impact on Small Entities:

The Commission in this proceeding has considered comments on ways to implement a new LPRS. In doing so, the Commission has adopted alternatives which minimize burdens placed on small entities. First, it has decided not to require LPRS transmitters to be individually licensed, as proposed in the *Notice* in this proceeding. This approach eliminates the need for small entities and individuals to apply for a license and remit processing fees. *See* paragraph 23 *supra*. Second, as the small business commenters point out, dividing the 216-217 MHz band into forty, twenty-five kilohertz channels will allow existing equipment designs (*e.g.*, 72-76 MHz band equipment) to be converted to permit operation in the higher band. This approach promotes the rapid delivery of LPRS devices to the public with a minimum negative impact on manufacturers who are small businesses. *See* paragraph 32 *supra*. Third, it has decided not to require LPRS transmitter stability to be controlled by crystal oscillators. This approach permits manufacturers to use other technologies that may be cheaper to implement and can provide equivalent, if not better, control of a unit's operating frequency. *See* paragraph 36 *supra*. Fourth, it has decided not to require AMTS licensees to renotify broadcast licensees prior to commencing point-to-point operations under the LPRS. Renotification is unnecessary because AMTS applicants already notify affected broadcast licensees prior to licensing. Further, it is unlikely that AMTS point-to-point operations will affect broadcast licensees that have not already been notified. This action eliminates unnecessary economic and administrative burdens for AMTS providers that are also small businesses. Fifth, the Commission has taken steps to minimize the economic burdens associated with the labeling requirement found in § 95.1017. The Commission minimized the number of words to be included in the label (half the number of words required for similar devices under Part 15 of our rules) and did not require the words to be engraved or molded into the transmitter unit. This action reduces burdens and increases flexibility for manufacturers that are also small entities.

VII. Significant Alternatives Considered and Rejected:

The Commission considered and rejected several significant alternatives. The Commission rejected the alternative of requiring LPRS transmitters to be licensed individually because it determined that such a procedure would not further spectrum management or enforcement goals and would place administrative and economic burdens on the public. *See* paragraph 23, *supra*. The Commission also rejected the alternative of permitting one-watt transmissions in the 216-217 MHz band because of the potential for harmful interference to TV reception. *See* paragraph 35, *supra*. Finally, the Commission rejected the alternative of requiring the use of crystal oscillators because there are other technologies that can control frequency stability that may be cheaper and just as efficient to implement. *See* paragraph 36, *supra*. By rejecting these alternatives, the Commission seeks to provide flexibility in the licensing and design of these low power transmitters while eliminating unnecessary regulatory burdens for small entities

VIII. Report to Congress:

The Commission shall send a copy of this Final Regulatory Flexibility Analysis, along with this *Report and Order*, in a report to Congress pursuant to the Small Business Regulatory